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(71) Applicant (for all designated States except US): **IGT**
[US/US]; 9295 Prototype Drive, Reno, NV 89511 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **MOSER, Timothy, W.**
[US/US]; 5725 Ibanez Street, Las Vegas, NV 89103 (US).

(74) Agent: **LOUIE, Michael, L.**; BEYER WEAVER &
THOMAS, LLP, P.O. Box 778, Berkeley, CA 94704-0778
(US).

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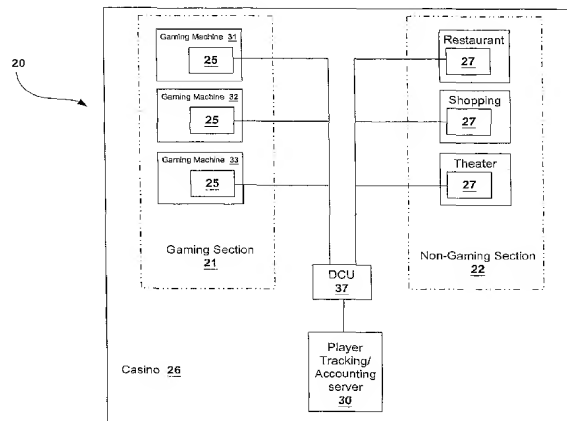
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(54) Title: **PLAYER TRACKING ASSEMBLY**



(57) **Abstract:** A player tracking system for tracking customer activity for a casino establishment having gaming sections and non-gaming sections. The player tracking system includes a plurality of player tracking cards for distribution to respective participating customers that incorporate respective customer accounts associated with respective customer IDs. The system further includes a plurality of gaming activity player tracking units positioned in the gaming section of the casino establishment proximate the gaming activity which cooperates with the player tracking cards to monitor the gaming activity data of the respective customer, and a plurality of non-gaming activity player tracking units positioned in the non-gaming section of the casino establishment proximate the non-gaming activity which cooperates with the player tracking cards to monitor the non-gaming activity data of the respective customer. A computer system includes a database of the respective customer accounts associated with respective customer IDs, and each gaming activity player tracking unit and each non-gaming activity player tracking unit coupled to the computer system to process the respective gaming activity data and non-gaming activity data for each respective customer.



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PLAYER TRACKING ASSEMBLY

BACKGROUND OF THE INVENTION

5 The present invention relates generally to player tracking services one gaming machines, and more particularly, relates to complete patron tracking of all casino activity.

 There are a wide variety of associated devices that can be connected to a gaming machine such as a slot machine or video poker machine. Some examples of
10 these devices are player tracking units, lights, ticket printers, card readers, speakers, bill validators, ticket readers, coin acceptors, display panels, key pads, coin hoppers and button pads. Many of these devices are built into the gaming machine or components associated with the gaming machine such as a top box which usually sits on top of the gaming machine.

15 Typically, utilizing a master gaming controller, the gaming machine controls various combinations of devices that allow a player to play a game on the gaming machine and also encourage game play on the gaming machine. For example, a game played on a gaming machine usually requires a player to input money or indicia of credit into the gaming machine, indicate a wager amount, and initiate a game play.
20 These steps require the gaming machine to control input devices, including bill validators and coin acceptors, to accept money into the gaming machine and recognize user inputs from devices, including touch screens and button pads, to determine the wager amount and initiate game play.

 After game play has been initiated, the gaming machine determines a game
25 outcome, presents the game outcome to the player and may dispense an award of some type depending on the outcome of the game. A game outcome presentation may utilize many different visual and audio components such as flashing lights, music, sounds and graphics. The visual and audio components of the game outcome presentation may be used to draw a players attention to various game features and to
30 heighten the players interest in additional game play. Maintaining a game player's interest in game play, such as on a gaming machine or during other gaming activities, is an important consideration for an operator of a gaming establishment.

 One related method of attaining and/or maintaining a game player's interest in game play are player tracking programs which are offered at various casinos. Player

tracking programs provide rewards to players that typically correspond to the player's level of patronage (e.g., to the player's playing frequency and/or total amount of game plays at a given casino). Player tracking rewards may include free meals, free lodging and/or free entertainment. These rewards may help to sustain a game player's interest in additional game play during a visit to a gaming establishment and may entice a player to visit a gaming establishment to partake in various gaming activities.

In general, player tracking programs may be applied to any game of chance offered at a gaming establishment. In particular, player tracking programs are very popular with players of mechanical slot gaming machines and video slot gaming machines. In a gaming machine, a player tracking program is implemented using a player tracking unit installed in the gaming machine and in communication with a remote player tracking server.

Due to their increasing popularity, player tracking cards and player tracking programs have essentially become the de facto marketing method of doing business at casinos. As suggested above, a player's incentive for using the player tracking services is awards provided by the gaming machine operator (e.g., the casino). Some incentives of a casino for providing player tracking services is to generate "brand" loyalty, gather valuable information that may be used for marketing and provide better customer services. This is due to the fact that the programs allow a casino to identify and reward customers based upon their previous game play history. In particular, a goal of the casinos is to identify and then to provide a higher level of service to certain groups of players identified as especially valuable to the casinos.

Gaming establishments are continually searching for new and innovative techniques to track patron activity to improve casino operations and marketing. Thus, while these current tracking systems are adequate, they are limited mainly to gaming play and Point-Of-Sales events. It would be desirable, accordingly, to provide an apparatus and method for player tracking programs that allow the casinos to expand such player tracking to include all casino activity.

SUMMARY OF THE INVENTION

The present invention provides a player tracking system for tracking customer activity for a casino establishment having gaming sections and non-gaming sections. The tracking system includes a plurality of player tracking cards adapted for distribution to respective participating customers of the tracking program. These

cards include respective customer IDs which are associated with respective customer accounts. The system further includes a plurality of gaming activity player tracking units positioned in the gaming section of the casino establishment proximate the gaming activity. These activity player tracking units cooperate with the player tracking cards to monitor the gaming activity data of the respective customer. A plurality of non-gaming activity player tracking units are also positioned about the casino establishment in the non-gaming sections thereof which cooperate with the player tracking cards to monitor the non-gaming activity data of the respective customer. A computer system of the player tracking system includes a database of the respective customer accounts associated with respective customer IDs. Each gaming activity player tracking unit and each non-gaming activity player tracking unit is coupled to the computer system to process the respective gaming activity data and non-gaming activity data for each respective customer.

Accordingly, not only is the gaming activity monitored, similar to current player tracking programs, but non-gaming activity is also monitored. Most notably, patron movement throughout the casino establishment is monitored which provides the establishment with a unique ability to maximize customer service and promotions to each customer based upon both the gaming activity data and non-gaming data.

In one specific embodiment, the non-gaming activity player tracking unit includes a wireless interface configured to detect the presence of a respective player tracking card in the local vicinity of the respective non-gaming section of the casino establishment. This device is preferably configured for placement proximate the entrances and exits of selected, respective non-gaming sections of the casino establishment. Thus, the non-gaming activity player tracking unit can detect when a respective customer enters and/or exits a particular respective non-gaming section, such as a casino restaurant, a casino shop, a casino theater, a casino bar or a casino showroom.

In another embodiment, the respective player tracking card is a Radio Frequency (RF) enabled smart card configured to generate an RF signal, and the wireless interface is a Radio Frequency (RF) receiver responsive to the RF signal.

In still another specific configuration, the computer system includes a management program which updates a theoretical win profile for the respective customer as a function of estimated winnings from the betting activity of the customer at the casino establishment over a time period.

In another aspect of the present invention, a method is included for tracking customer activity at a casino establishment having gaming sections and non-gaming sections, at a casino establishment having gaming sections and non-gaming sections. The method includes monitoring at least one gaming activity player tracking unit in
5 the gaming section of the casino establishment for gaming activity data by a respective customer; and monitoring at least one non-gaming activity player tracking unit in the non-gaming section of the casino establishment for non-gaming activity data by the respective customer.

The monitoring the at least one gaming activity player tracking unit includes
10 detecting the presence of a respective player tracking card in the local vicinity of the respective non-gaming section of the casino establishment through a wireless interface component of the non-gaming activity player tracking unit.

In another specific embodiment, the method includes placing the non-gaming activity player tracking unit proximate one of an entrance and an exit of a selected,
15 respective non-gaming section of the casino establishment to detect one of the entrance and the exit of the respective customer into and out of the respective non-gaming section. The method may further include tracking patron movement of the respective customers in the non-gaming sections of the casino establishment through the non-gaming activity data, and periodically updating the patron movement of the
20 respective customers in the casino establishment over a time period.

BRIEF DESCRIPTION OF THE DRAWINGS

The assembly of the present invention has other objects and features of advantage which will be more readily apparent from the following description of the best mode of carrying out the invention and the appended claims, when taken in
25 conjunction with the accompanying drawing, in which:

FIGURE 1 is a block diagram of a player tracking system constructed in accordance with the present invention having gaming activity player tracking units and non-gaming activity player tracking units.

FIGURE 2 is a block diagram of the components of the gaming activity player tracking unit and the non-gaming activity player tracking unit of player tracking
30 system of FIGURE 1.

FIGURE 3 is a block diagram of the components of a Radio Frequency enabled smart card.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

While the present invention will be described with reference to a few specific embodiments, the description is illustrative of the invention and is not to be construed as limiting the invention. Various modifications to the present invention can be made
5 to the preferred embodiments by those skilled in the art without departing from the true spirit and scope of the invention as defined by the appended claims. It will be noted here that for a better understanding, like components are designated by like reference numerals throughout the various figures.

Attention is now directed to FIGURES 1 and 2 where a player tracking
10 system, generally designated 20, is illustrated for tracking customer activity for a casino establishment having gaming sections 21 and non-gaming sections 22. The tracking system 20 includes a plurality of player tracking identification devices 23 adapted for distribution to respective participating customers of the tracking program. These devices 23 include respective customer IDs which are associated with
15 respective customer accounts. The system 20 further includes a plurality of gaming activity player tracking units 25 positioned in the gaming section 21 of the casino establishment 26. These activity player tracking units 25 cooperate with the player tracking identification devices 23 to monitor the gaming activity data of the respective customer. A plurality of non-gaming activity player tracking units 27 are
20 also positioned about the casino establishment 26 in the non-gaming sections 22 thereof which cooperate with the player tracking identification devices 23 to monitor the non-gaming activity data of the respective customer. A computer system, generally designated 28, of the player tracking system 20 includes a database of the respective customer accounts associated with respective customer IDs. Each gaming
25 activity player tracking unit 25 and each non-gaming activity player tracking unit 27 is coupled to the computer system 28 to process the respective gaming activity data and non-gaming activity data for each respective customer.

Accordingly, this tracking system would enable the casino establishment to monitor both gaming activity and non-gaming activity within the casino. The
30 conventional monitoring of gaming activity is well known, and has been successfully applied throughout the industry. Extending such monitoring to other non-gaming activity, however, is relatively new, but may prove to be just as valuable to increase revenue. For example, the non-gaming activity player tracking units 27 can be adapted to monitor the entrance and/or the exit of the patron in the non-gaming

section 22 of the casino establishment. Thus, one form of non-gaming activity monitoring would be the tracking of patron movement throughout the establishment in such non-gaming avenues of the casino as theater, shopping and restaurants. By recording the time of entrance and exit of a patron in a particular store or restaurant, the casino establishment can monitor and analyze their tendency to shop particular stores or frequent particular restaurants. Using the combined gaming activity data and non-gaming activity data, promotions and customer service programs can be more customized toward the respective customer. monitored which enables the casino establishment to better customize promotional awards to the respective customer based upon their past attendance at the particular non-gaming sections.

By way of example, if the non-gaming activity data revealed that a particular patron frequently visited one of the many casino restaurants or shops more than another, future promotions could of that restaurant could be directed to that patron to entice future patronage. Moreover, other promotions from other casino restaurants or stores can be directed toward that respective customer to entice patronage at those the customer does not frequent. The ability for casinos to track the activity of card carrying patrons through their entire visit to casinos would provide the establishment with a tremendous increase in data for demographic study. Casinos, for instance, could better estimate how long it takes for a patron to begin gambling after they have entered the property. In other situations, the establishment could identify which restaurants, shops, etc. that card-carrying patrons more frequently visit even if they use cash for purchases. It would literally add another level to focusing casino operations and marketing on maximizing patron behaviors. In addition, it could add another level to customer service.

In still other applications, the player tracking system 20 could identify the participating patron through their player tracking identification device as they entered a restaurant or shop. A host or sales consultant could then approach and greet that patron by name, offer Comps or promotions to VIP's, know what products interest them, etc.

Referring to FIGURE 1, the block diagram is provided which broadly illustrates the computer system 28 of the player tracking system 20 having a central player tracking/accounting server 30. The player tracking account server is typically configured to A) store player tracking account information relating to a player's previous game play, B) store player tracking account information relating to a

player's historical frequency (E.g., the date and time spent) in the selected non-gaming sections of the casino, C) calculate player tracking points based on a player's game play that may be used as basis for providing rewards to the player; and D), calculate player tracking points and promotions based on a player's frequency at the selected non-gaming sections. The system is further defined, as mentioned, by a plurality of gaming activity player tracking units 25 to monitor the gaming activity data received from their corresponding gaming activity interfaces. This gaming activity component, as will be described, is essentially provided by conventional player tracking technology. Further coupled to the player tracking server, in accordance with the present invention, is a plurality of non-gaming activity player tracking units 27 which monitor the non-gaming activity data received from corresponding non-gaming activity interface positioned at the corresponding sections.

As mentioned, the present invention includes a conventional gaming activity component of the player tracking system similar to those currently in widespread application. Briefly, as illustrated in FIGURE 1, the block diagram of a number of gaming machines with gaming activity player tracking units is illustrated connected to servers providing player tracking services. For example, in casino establishment 26, gaming machines 31, 32 and 33 are connected, via the data collection unit (DCU) 37 to the computer system or player tracking/accounting server 30. The DCU 37, which may be connected to up to thirty-two (32) gaming activity player tracking units as part of a local network in a particular example, consolidates the information gathered from player tracking units in gaming machines 31, 32 and 33 and forwards the information to the player tracking account server 30.

In gaming machine 31 of casino establishment 26, a gaming activity player tracking unit 25 and slot machine interface board (SMIB) 40 are mounted within a main cabinet 41 of the gaming machine. In many types of gaming machines, the player tracking unit is mounted within a top box 42 positioned atop the gaming machine cabinet 41. Usually, player tracking units, such as 25, and SMIBs, such as 40, are manufactured as separate units before installation into a gaming machine 31.

Typically, the gaming activity player tracking unit 25 includes three player tracking devices: a gaming activity card reader 43; a key pad 45; and a display 46, all mounted within the unit. These player tracking devices are associated with a wired Input/Output Interface 35, and are used to input player tracking information that is needed to implement the player tracking program. As will be described in greater

detail below, the player tracking unit 25 may include a wireless Input/Output Interface 36 as well. The gaming activity component of player tracking system 20 may be mounted in many different arrangements depending upon design constraints such as accessibility to the player, packaging constraints of a gaming machine and a configuration of a gaming machine. For instance, the player tracking devices may be mounted flush with a vertical surface in an upright gaming machine and may be mounted flush or at a slight angle upward with a horizontal in a flat top gaming machine.

The gaming activity player tracking unit 25 communicates with the player tracking server via the SMIB 40, a main communication board 47 and the DCU 37. The SMIB 40 allows the player tracking unit 25 to gather information from the gaming machine 31 such as an amount a player has wagered during a game play session. This information may be used by the player tracking server 30 to calculate player tracking points for the player. The gaming activity player tracking unit 25 is usually connected to the master gaming controller 48 via a serial connection using a wire serial connector and communicates with the master gaming controller 48 using a serial communication protocol. The serial connection between the SMIB 40 and the master gaming controller 48 may be through the main communication board 47, through another intermediate device or through a direct connection to the master gaming controller 48. In general, communication between the various gaming devices is provided using wire connectors with proprietary communication protocols. As an example of a proprietary serial communication protocol, the master gaming controller 48 may employ a subset of the Slot Accounting System (SAS protocol) developed by International Game Technology of Reno, NV to communicate with the player tracking unit 25.

In one particular embodiment, by way of example, when a game player desires to play a game on a gaming machine and utilize the gaming activity component of player tracking system 20 available through the player tracking unit, a game player inserts their issued player tracking identification device 23, such as a magnetic striped card, into the card reader 43. Briefly, for current player tracking programs, the most common approach for providing identification information is to issue a magnetic-striped card storing the necessary identification information to each player that wishes to participate in a given player tracking program. It will be appreciated, however, as will be better described below, that the issued player

tracking identification device 23 may be wireless interfaces such as Radio Frequency (RF) enabled smart cards and/or wireless Personal Digital Assistants (PDA) which enable wireless communication with the player tracking server. Accordingly, wireless communication may be provided for both the gaming activity player tracking unit 25 and the non-gaming player tracking unit 27.

After the magnetic striped or smart card has been so inserted, the gaming activity player tracking unit 25 may detect this event and receive certain identification information contained on the card. For example, a player's name, address, social security number and player tracking account number encoded on the magnetic striped card, may be received by the player tracking unit 25. In general, a player must provide identification information of some type to utilize player tracking services available on a gaming machine.

Once the player has inserted her or his player tracking card into the gaming activity card reader 43, the player tracking unit 25 may command the touch screen display 46 to display the game player's name on the touch screen display 46 and also, may optionally display a message requesting the game player to validate their identity by entering an identification PIN code using a game service interface with an alphanumeric key pad displayed on touch screen display 46 or through a player tracking input keypad. For example, the player may use their finger, a stylus or combinations thereof to enter their identification information using the touch screen sensor. Once the game player's identity has been validated, the player tracking information is relayed to the player tracking server 30. Typically, the player tracking server 30 stores player tracking account records including the number of player tracking points previously accumulated by the player. Using this gaming activity data, the casino establishment may monitor their gaming activity for future promotions and customer service. Some player tracking systems, for example, incorporate management programs which update and calculate theoretical win profiles for each respective customer. These profiles are generally a function of estimated winnings from the betting activity of the customer at the casino establishment over a time period.

Details of player tracking units with peripheral devices operated by a master gaming controller are described in co-pending U.S. patent application No. 09/838,033, filed 4/19/01, by Criss-Puskiewicz, et al, titled "Universal Player Tracking System," which is incorporated herein in its entirety and for all purposes and co-pending U.S. patent application No. 09/642,192, filed 8/18/00, by LeMay, et

al, titled "Gaming Machine Virtual Player Tracking Services," which is incorporated herein in its entirety and for all purposes. Moreover, details of player tracking systems with wireless player tracking identification devices are described in co-pending U.S. patent application No. : 09/921,489, filed 8/3/01, by Hedrick, et al,
5 titled "Player Tracking Communication Mechanisms in a Gaming Machine" which is incorporated herein in its entirety and for all purposes

With respect to the non-gaming player tracking unit 27 (FIGURE 2), wireless communication is necessary to maintain any ability to monitor patron movement throughout the non-gaming sections 22 of the casino establishment without
10 inconveniencing the customer. Thus, the non-gaming activity player tracking unit 27 of the tracking system includes a wireless interface 49 configured to locally communicate with the respective wireless identification device 23 issued to that customer. In this manner, movement of the patron can be detected and tracked in the selected non-gaming sections of the casino establishment without requiring a manual
15 input device in the that section. By placing the wireless interfaces at or in the vicinity of the entrances and exits of the selected non-gaming section, the entry into and exit, as well as the time of entry and exit from that non-gaming section can be monitored.

The wireless interface 49, therefore, may be applied to detect or communicate with the identification device 23 carried by the player. These wireless identification
20 devices 23, as mentioned, maybe provided by a Radio Frequency (RF) enabled smart card 50, which has a footprint about the size of a player tracking card, or a portable wireless device, such as a Personal Digital Assistant (PDA) carried or worn by the player. Accordingly, when a patron is in a non-gaming section 22 of the casino, the respective wireless interface 49 may automatically detect the player tracking
25 identification device 23 carried by the player (or they may automatically detect each other) to establish communications allowing presence detection and/or allowing gaming information to be transferred between the wireless devices.

By way of example, the wireless interface 49 may use a wireless communication standard such as BluetoothTM to communicate with portable wireless
30 devices using the same standard. It will be appreciated, however, that other wireless communication protocols such as IEEE 802.11a, IEEE 802.11b, IEEE 802.11x (e.g. other IEEE802.11 standards), hiperlan/2, and HomeRF may also be used. Bluetooth devices communicate on a frequency of 2.45 Gigahertz. Typically, Bluetooth devices send out signals in the range of 1 milliwatt. The signal strength limits the range of the

devices to about 10 meters and also limits potential interference sources. Interference is also limited by using spread-spectrum frequency hopping. For instance, a device may use seventy-nine (79) or more randomly chosen frequencies within a designated range that change on a regular basis up to 1,600 times a second. Thus, even if
5 interference occurs, it is likely only to occur for a short period of time.

When Bluetooth-capable devices come within range of one another, an electronic conversation commences to determine whether they have data share or whether one needs to control the other. The connection process is performed automatically. Once a conversation between the devices has occurred, the devices
10 form a network. Bluetooth systems create a Personal-Area Networks (PAN) or “piconets”. While the two or more devices in a piconet remain in range of one another, the distances between the communications devices may vary as the wireless devices are moved about. Once a piconet is established, such as between the wireless
15 interface 49 and a portable wireless device, the members of the piconet randomly hop frequencies in unison so they remain in touch with another and avoid other piconets that may be operating in proximity to the established piconet. When Bluetooth is applied in a casino environment, many such piconets may be operating simultaneously. Details of the Bluetooth™ standard and the Bluetooth™ special
20 interest group may be found at www.bluetooth.com.

The wireless interfaces 49, therefore, should only be capable of local detection of the player tracking identification devices 23 so that the wireless player tracking units at adjacent non-gaming sections, or even the same section, will not improperly detect the presence of the patron. Preferably, such localized detection should be
25 within the range of about 0.0 feet to about 10.0 feet, and more preferably in the range of about 3.0 feet of the entrances into selected restaurants, shops, bars, nightclubs, theaters or any other strategic locations throughout the casino establishment 26.

There are several conventional types of wireless technologies which may be applied for wireless identification devices. For example, these include the Radio Frequency Identification (RFID) Systems such as the Ti-FRID systems provided by
30 Texas Instruments Incorporated of Dallas, TX, and the contactless smart cards by Fargo Electronics, Inc. of Eden Prairie, MN.

As mentioned, one particularly suitable technology is a Radio Frequency (RF) enabled smart card which can be applied in both the gaming activity tracking unit 25, and the non-gaming tracking unit 27. For instance, FIGURE 3 illustrates a block

diagram of the components of a smart card 50 that may be used in the present invention. The RF enabled smart card may be designed for wired or wireless use with a gaming machine, gaming peripheral, gaming terminal or some other gaming device, or use with the wireless interface 49 of the tracking unit 27 situated in the non-gaming section 22 of the casino. The smart card 50 which preferably has the same footprint as a magnetic striped card and may include a wired input/output interface 51, a wireless input/output interface 52, a processor 53, memory 55 and a battery 56 incorporated in some manner on a card substrate 57. The battery 56 is used to supply power to operate the devices on the smart card 50. In some embodiments, when it is inserted into a smart card reader of some type, power may also be supplied to the card by the smart card reader.

The smart card 50 may include an operating system of some type that is used to run applications on the smart card. In some embodiments, the operating system for the smart card 50 may be provided by Microsoft (Redmond, Washington) or Sun Microsystems of Palo Alto, California. The operating system may be used to manage the execution of gaming applications on the smart card. The operating system and gaming applications may be incorporated into the processor 53 as firmware, stored in the memory 55 on the smart card or may be implemented as a combination of firmware in the processor 53 and stored in the memory 55. The processor 53 may be a general purpose microprocessor or a custom microcontroller incorporating gaming specific firmware. The memory 55 may be flash memory.

The wired Input/output interface 51 may be an I/O EEPROM or the like that allows the smart card 50 to communicate with a smart card reader, such as card reader 43 in FIGURE 2. Further, the I/O interface 51 may include one or more communication protocols that allow the smart card 50 to communicate directly with a gaming machine, gaming peripheral, gaming terminal or some other gaming device designed to communicate with the smart card. Some communication protocols may be stored in the memory 55 of the smart card 50. The communication protocols stored in the memory 55 may be added or deleted from the smart card 50 as needed.

In contrast, the wireless Input/output or Input interfaces 49, 36 may be provided by a wireless smart card reader 58 which permits the smart card 50 to communicate with the non-gaming activity player tracking unit 27, and/or the gaming activity player tracking unit 25 residing on a gaming machine, a gaming peripheral, a gaming terminal or some other gaming device designed to communicate with the

smart card. This wireless I/O interface 49, 36 may include one or more wireless communication protocols, such as the wireless communication standard Bluetooth™ described above, that allow the smart card 50 to communicate with the corresponding wireless smart card reader 58. Some communication protocols may be stored in the memory 55 of the smart card 50, and may be added or deleted from the smart card 50 as needed.

In accordance with the present invention, the wireless smart card readers 58 of non-gaming activity player tracking units 27 are preferably provided by strategically positioned around the casino establishment to track and monitor movement of the player tracking participating customers. In particular, for casino non-gaming sections 22 such as restaurants, shops, theaters, bars or showrooms, the wireless smart card readers 58 are positioned proximate the entrances and/or exits into and out of the respective sections. Similar to department store security devices, these localized radio receivers may include two cooperating detector devices adapted for placement on opposed sides of each entrance/exit. When a patron carrying an RF enabled smart cards passes between the opposed detectors, their entrance/exit from the non-gaming section can be recorded.

In the present invention, the functions of the smart card, described above, may be performed by other wireless gaming devices. For instance, a player may carry a personal digital assistant (PDA) that executes gaming applications, and may communicate with the non-gaming activity player tracking unit 27 or gaming activity player tracking unit at the gaming machine via a wireless communication interface. One example of a PDA that may be adapted for use with the present invention is the Palm VII from Palm, Inc., Santa Clara, California.

Although the foregoing invention has been described in some detail for purposes of clarity of understanding, it will be apparent that certain changes and modifications may be practiced within the scope of the appended claims. For instance, while the gaming machines of this invention have been depicted as upright models having top box mounted on top of the main gaming machine cabinet, the use of gaming devices in accordance with this invention is not so limited. For example, gaming machine may be provided without a top box or the gaming machine may be of a slant-top or table top design.

CLAIMS

What is claimed is:

1. A system for tracking customer activity, using player tracking cards issued to
respective customers that include respective customer IDs which are associated with
5 respective customer accounts, at a casino establishment having gaming sections and
non-gaming sections, said system comprising:
at least one gaming activity player tracking unit in the gaming section of the
casino establishment which cooperates with the player tracking cards to monitor the
gaming activity data of the respective customer; and
10 at least one non-gaming activity player tracking unit in the non-gaming
section of the casino establishment which cooperates with the player tracking cards to
monitor the non-gaming activity data of the respective customer.
2. The system of claim 1, wherein
said non-gaming activity player tracking unit includes a wireless interface
15 configured to detect the presence of a respective player tracking card in the local
vicinity of the respective non-gaming section of the casino establishment.
3. The system of claim 2, wherein
said non-gaming activity player tracking unit is configured for placement
proximate an opening into the respective non-gaming section to detect at least one of
20 an entrance and an exit of the respective customer into and out of the respective non-
gaming section.
4. The system of claim 3, wherein
said wireless interface is a Radio Frequency (RF) receiver.
5. The system of claim 1, wherein
25 said non-gaming activity includes the tracking of patron movement in said
casino establishment.
6. The system of claim 1, further including:
a computer system having a database of the respective customer accounts
associated with respective customer IDs, and each said at least one gaming activity
30 player tracking unit and the at least one non-gaming activity player tracking unit
coupled to the computer system to process the respective gaming activity data and
non-gaming activity data for each respective customer.
7. The system of claim 6, wherein

said database includes a management program for updating a theoretical win profile for the respective customer as a function of estimated winnings from the betting activity of the customer at the casino establishment over a time period.

8. The system of claim 7, wherein

5 said at least one gaming activity player tracking unit includes a card reader device coupled to the computer system to read customer identity information from the respective player tracking card and provide the customer identity information to the computer system.

9. A player tracking system for tracking customer activity for a casino
10 establishment having gaming sections and non-gaming sections, said system comprising:

 a plurality of player tracking cards for distribution to respective participating customers that include respective customer IDs which are associated with respective customer accounts;

15 a plurality of gaming activity player tracking units positioned in the gaming section of the casino establishment proximate the gaming activity which cooperates with the player tracking cards to monitor the gaming activity data of the respective customer;

 a plurality of non-gaming activity player tracking units positioned in the non-
20 gaming section of the casino establishment proximate the non-gaming activity which cooperates with the player tracking cards to monitor the non-gaming activity data of the respective customer; and

 a computer system having a database of the respective customer accounts associated with respective customer IDs, and each gaming activity player tracking unit
25 and each non-gaming activity player tracking unit coupled to the computer system to process the respective gaming activity data and non-gaming activity data for each respective customer.

10. The system of claim 9, wherein

 said non-gaming activity player tracking unit includes a wireless interface
30 configured to detect the presence of a respective player tracking card in the local vicinity of the respective non-gaming section of the casino establishment.

11. The system of claim 10, wherein

 said non-gaming activity player tracking unit is configured for placement proximate the entrances and exits of selected, respective non-gaming sections of the

casino establishment to detect at least one of an entrance and an exit of the respective customer into and out of the respective non-gaming section.

12. The system of claim 11, wherein

5 said non-gaming sections include one or more of the following: a casino restaurant, a casino shop, a casino theater, a casino bar and a casino showroom.

13. The system of claim 12, wherein

said database includes a management program to update the patron movement of the respective customers in said casino establishment over a time period.

14. The system of claim 13, wherein

10 said management program is further adapted to update a theoretical win profile for the respective customer as a function of estimated winnings from the betting activity of the customer at the casino establishment over a time period.

15. The system of claim 14, wherein

15 each gaming activity player tracking unit includes a card reader device coupled to the computer system to read customer identity information from the respective player tracking card and provide the customer identity information to the computer system.

16. The system of claim 10, wherein

20 said respective player tracking card is a Radio Frequency (RF) enabled smart card configured to generate an RF signal, and

said wireless interface is a Radio Frequency (RF) receiver responsive to said RF signal.

17. A method for tracking customer activity, using player tracking cards issued to respective customers that include respective customer IDs which are associated with
25 respective customer accounts, at a casino establishment having gaming sections and non-gaming sections, at a casino establishment having gaming sections and non-gaming sections, said method comprising:

30 monitoring at least one gaming activity player tracking unit in the gaming section of the casino establishment for gaming activity data by a respective customer; and

monitoring at least one non-gaming activity player tracking unit in the non-gaming section of the casino establishment for non-gaming activity data by the respective customer.

18. The method of claim 17, wherein

said monitoring at least one gaming activity player tracking unit includes detecting the presence of a respective player tracking card in the local vicinity of the respective non-gaming section of the casino establishment through a wireless interface component of the non-gaming activity player tracking unit.

5 19. The method of claim 18, wherein

said respective player tracking card is a Radio Frequency (RF) enabled smart card configured to generate an RF signal, and

said wireless interface is a Radio Frequency (RF) receiver responsive to said RF signal.

10 20. The method of claim 18, further including:

placing the non-gaming activity player tracking unit proximate one of an entrance and an exit of a selected, respective non-gaming section of the casino establishment to detect one of the entrance and the exit of the respective customer into and out of the respective non-gaming section.

15 21. The method of claim 20, wherein

said non-gaming section includes one of the following: a casino restaurant, a casino shop, a casino theater, a casino bar and a casino showroom.

22. The method of claim 20, further including:

20 tracking patron movement of the respective customers in the non-gaming sections of the casino establishment through the non-gaming activity data.

23. The method of claim 22, wherein

periodically updating the patron movement of the respective customers in said casino establishment over a time period.

24. The method of claim 23, further including

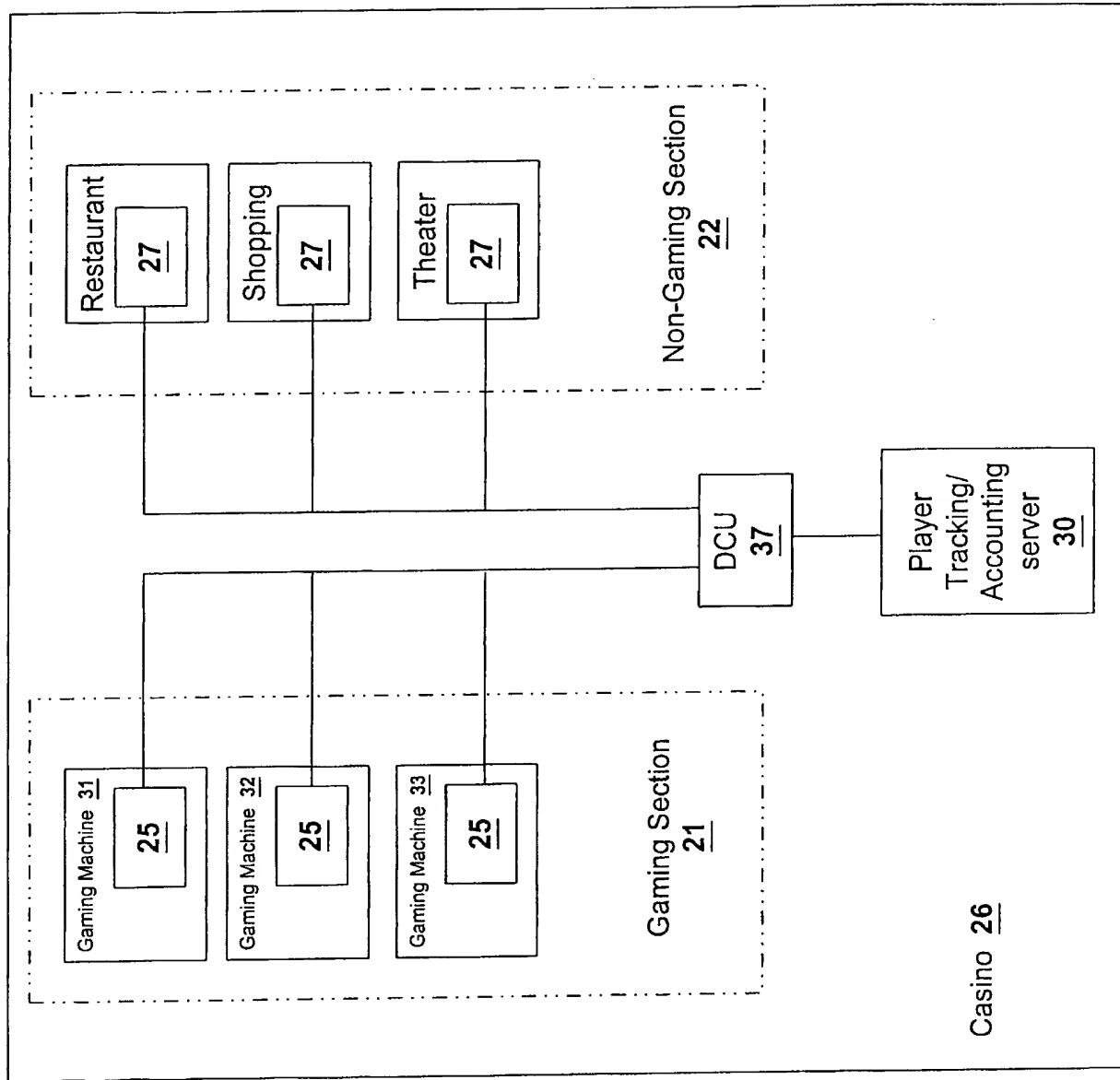
25 periodically updating a theoretical win profile for the respective customer, through the gaming activity data, as a function of estimated winnings from the betting activity of the customer at the casino establishment over a time period, and

storing the theoretical win profile in association with the customer account.

25. The method of claim 17, wherein

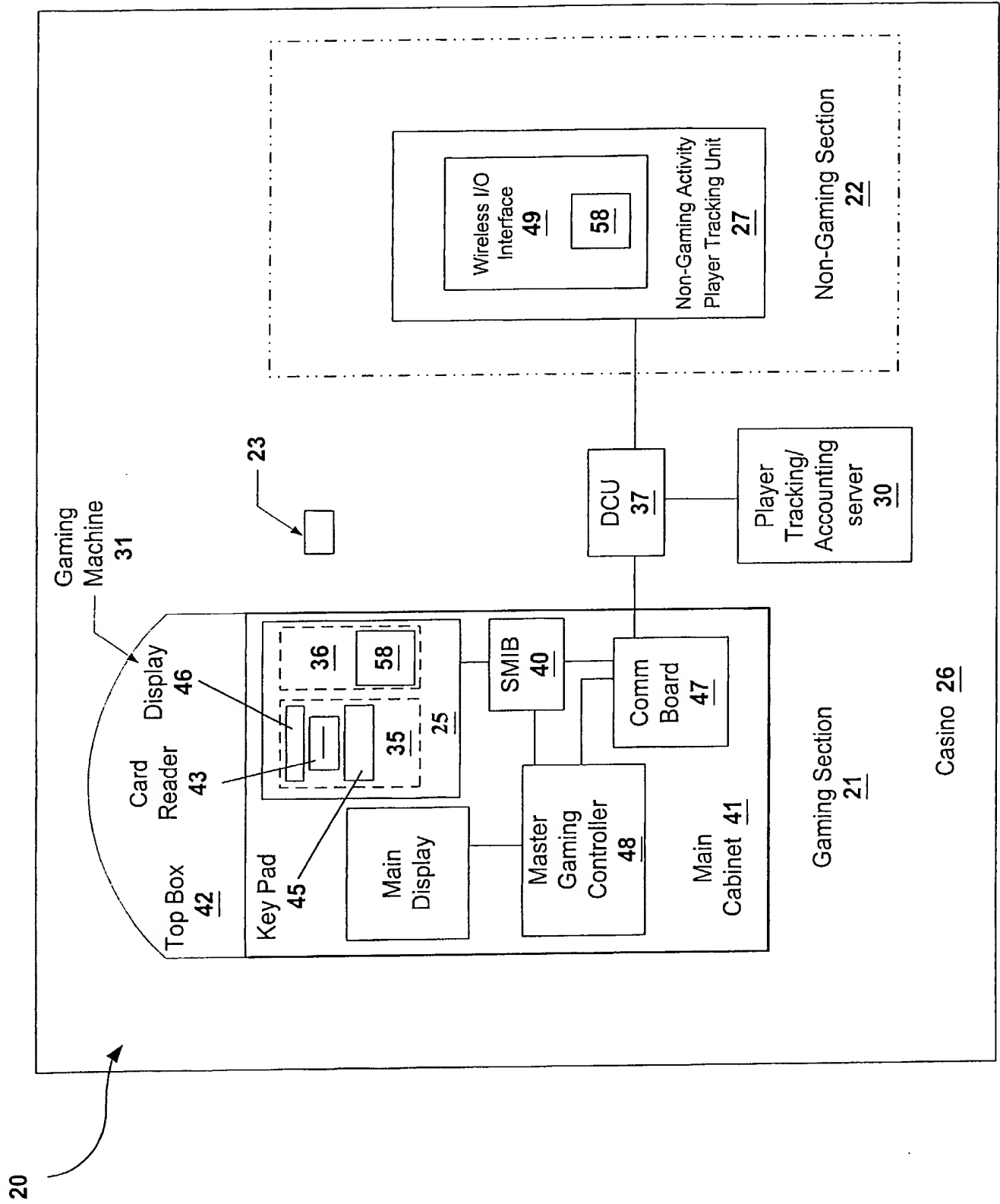
30 said monitoring of the gaming activity data includes reading the customer identity information from the respective player tracking card through a card reader device.

FIG. 1



20

FIG. 2



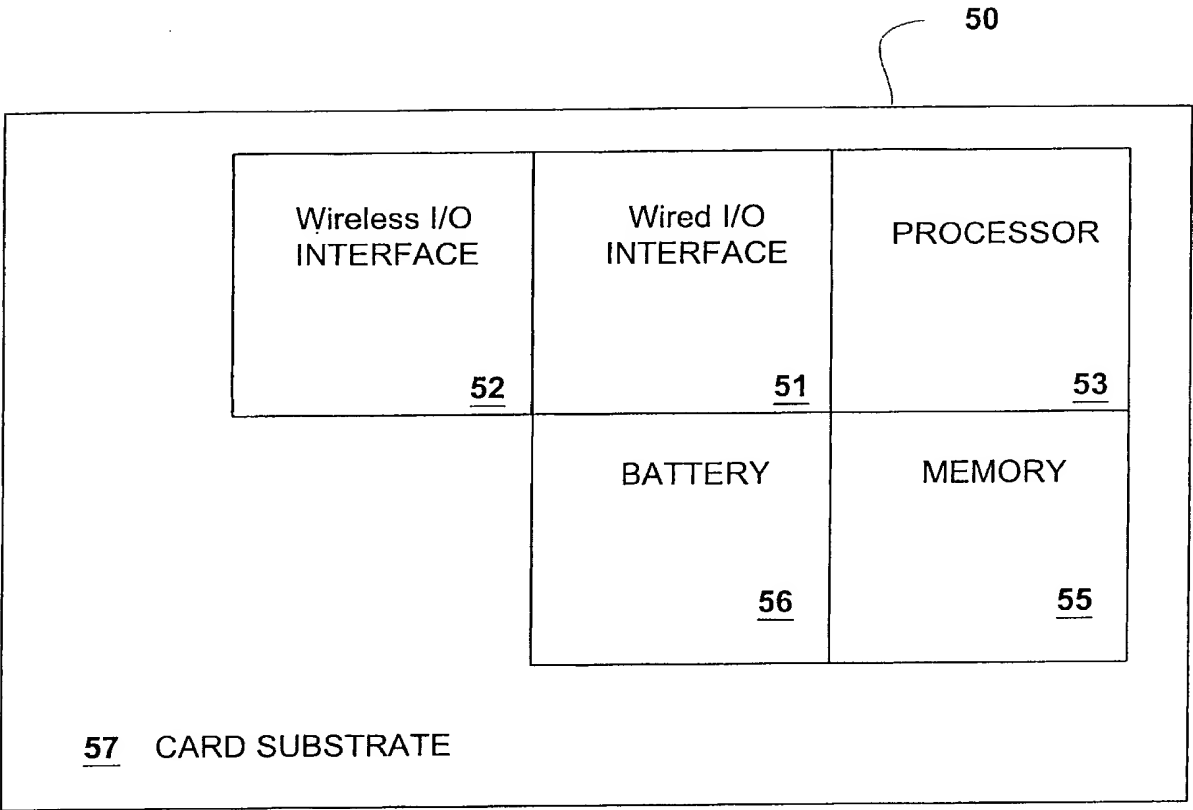


FIG. 3

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/18826

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G07F17/32 G07C11/00 G07C9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G07F G07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 770 533 A (FRANCHI JOHN FRANCO) 23 June 1998 (1998-06-23) abstract figures 2,3,6 column 2, line 43 -column 3, line 24 column 5, line 50 - line 65 column 7, line 20 - line 45 column 8, line 23 - line 28 column 8, line 64 -column 9, line 1 ---	1,9,17
Y	EP 0 360 613 A (BALLY MFG CORP) 28 March 1990 (1990-03-28) column 2, line 25 - line 63 column 5, line 53 -column 6, line 34 column 9, line 45 - line 65 --- -/--	1-5, 9-13, 17-21

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Name and mailing address of the ISA

European Patent Office, P.B. 5618 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Lavin Liermo, J

INTERNATIONAL SEARCH REPORT

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PCT/US 03/18826

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 00 52655 A (COCA COLA CO) 8 September 2000 (2000-09-08) page 3, line 8 - line 13 page 9, line 4 - line 27 figures 1-4 ---	1-5, 9-13, 17-21
A	EP 0 762 341 A (NIPPON ELECTRIC CO) 12 March 1997 (1997-03-12) figure 1 ---	3
A	FR 2 816 742 A (BRIAULT JULES AMEDEE ADEODAT) 17 May 2002 (2002-05-17) abstract figure 1 ---	2-6
A	US 2002/034978 A1 (GRAY GORDON E ET AL) 21 March 2002 (2002-03-21) abstract ---	1
A	US 5 977 913 A (CHRIST ROGER) 2 November 1999 (1999-11-02) abstract ---	3-6
A	FR 2 711 001 A (TAINGUY PATRICK; PACCHIANI LOUIS) 14 April 1995 (1995-04-14) abstract -----	3-6

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/18826

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5770533	A	23-06-1998	AU 2362695 A CA 2197448 A1 WO 9530944 A2	29-11-1995 16-11-1996 16-11-1995
EP 0360613	A	28-03-1990	US 5179517 A AT 116754 T AU 613484 B2 AU 3450489 A DE 68920391 D1 DE 68920391 T2 EP 0360613 A2	12-01-1993 15-01-1995 01-08-1991 29-03-1990 16-02-1995 27-07-1995 28-03-1990
WO 0052655	A	08-09-2000	US 6424884 B1 AU 745229 B2 AU 3390800 A BR 0008671 A CA 2364367 A1 CN 1342302 T CZ 20013161 A3 EP 1159714 A1 JP 2002538561 A WO 0052655 A1 US 2002183893 A1 ZA 200106736 A	23-07-2002 14-03-2002 21-09-2000 18-12-2001 08-09-2000 27-03-2002 17-04-2002 05-12-2001 12-11-2002 08-09-2000 05-12-2002 15-08-2002
EP 0762341	A	12-03-1997	JP 2705661 B2 JP 9073522 A JP 2768325 B2 JP 9081804 A EP 0762341 A2 KR 183491 B1 US 5831547 A	28-01-1998 18-03-1997 25-06-1998 28-03-1997 12-03-1997 15-04-1999 03-11-1998
FR 2816742	A	17-05-2002	FR 2816742 A1 EP 1223564 A1	17-05-2002 17-07-2002
US 2002034978	A1	21-03-2002	US 2002090992 A1 AU 9276701 A WO 0223496 A2	11-07-2002 26-03-2002 21-03-2002
US 5977913	A	02-11-1999	CA 2225638 A1	07-08-1998
FR 2711001	A	14-04-1995	FR 2711001 A1	14-04-1995